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Innovations in Managing Western Water: New Approaches for Balancing Environmental, Social and Economic Outcomes (Martz Summer Conference, June 11-12)

2015

6-11-2015

SLIDES: Moffat Collection System Project

Travis Bray

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Moffat Collection System Project

June 2015

MOFFAT COLLECTION SYSTEM PROJECT



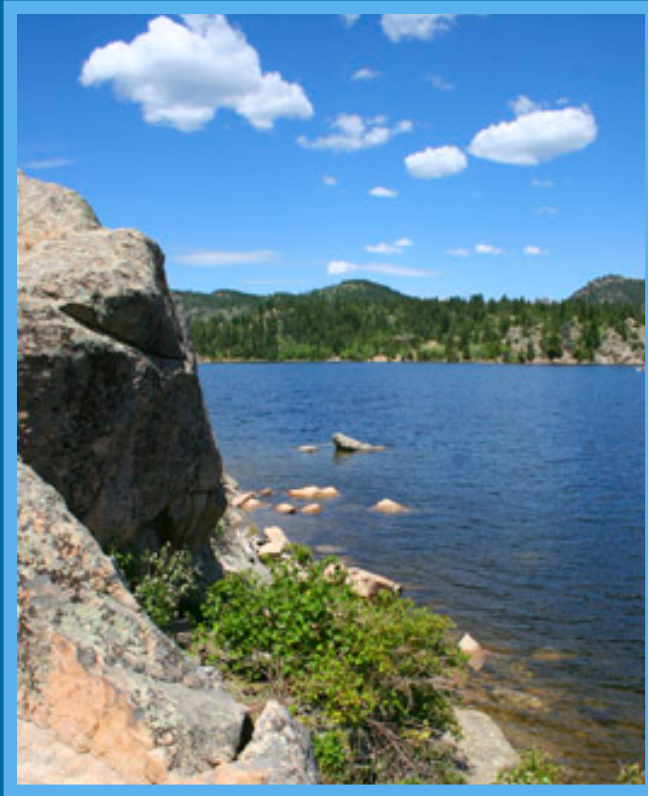
DENVER WATER

Three Prong Approach



- Conservation
- Recycle
- Supply

Three Prong Approach

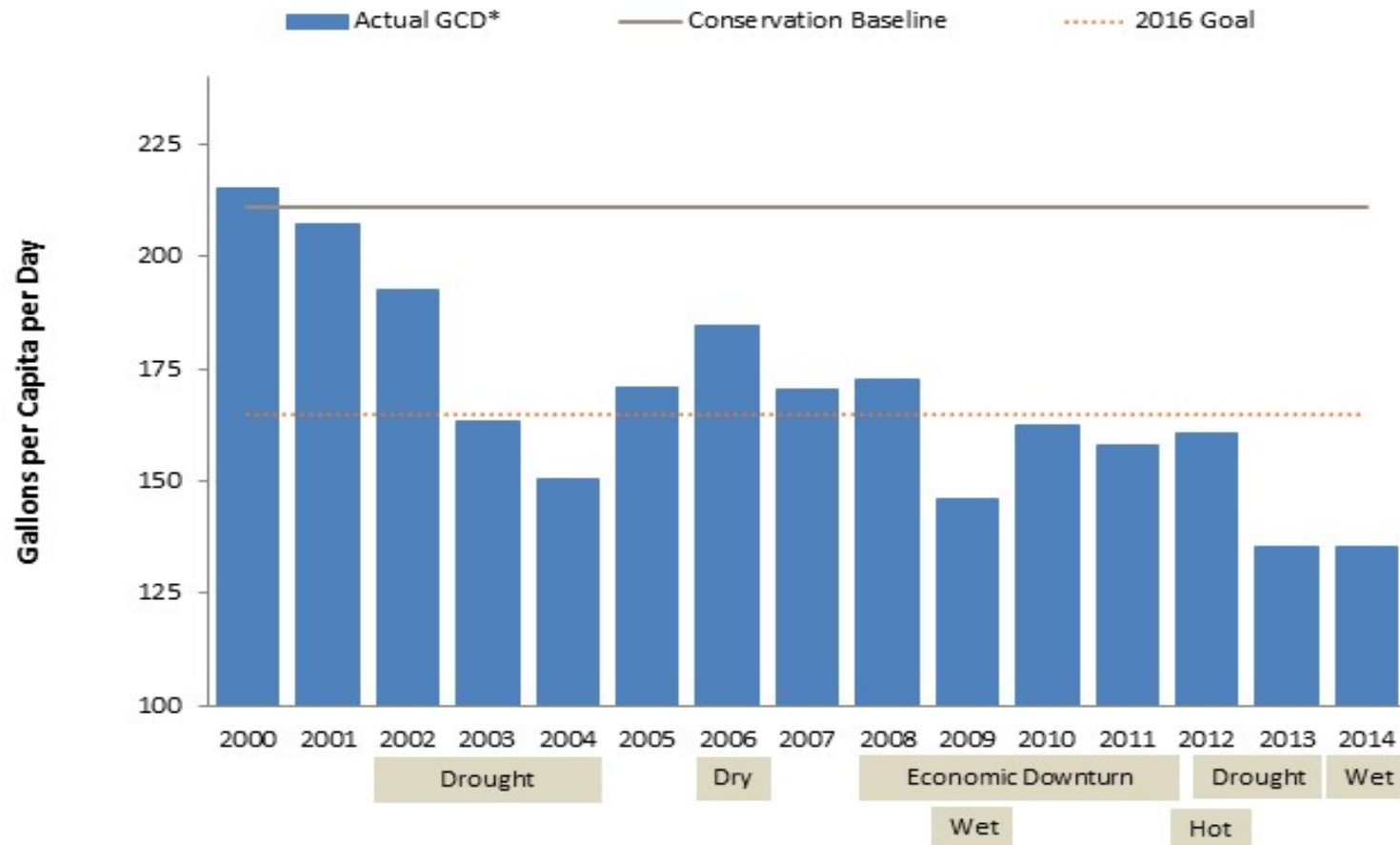


- **Conservation**
- **Recycle**
- **Supply**

Reduce water use by 22%
by 2016

So far water use has been
reduced by 21%

Daily per Capita Use (GCD)



*Actual GCD less fixed contract demand

MOFFAT COLLECTION SYSTEM PROJECT

2014 Conservation Program areas		AF Saving
Policy	Soil amendment	63
	Water use education and enforcement	49
Education	Audits	85
	Low-income homes – audits and toilet retrofits	190
Incentives	Residential rebates	645
	Commercial rebates	75
	Incentive contracts	104
Total		1,212

New Legislation



Rain Barrels

MOFFAT COLLECTION SYSTEM PROJECT

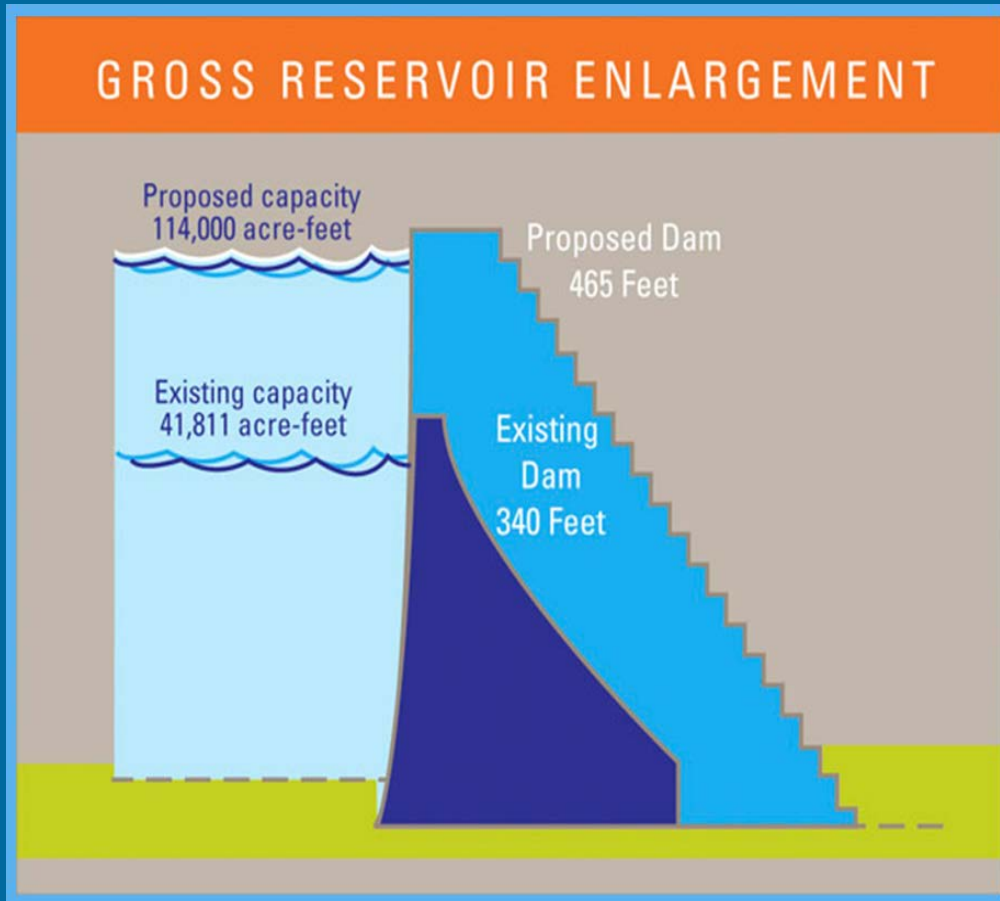
Three Prong Approach



- Conservation
- **Recycle**
- Supply

Meet 17,500 acre-feet of demand with reuse
So far 7,500 acre-feet of demand
2025 completion goal

Three Prong Approach



- **Supply**
 - **Reliability**
 - **Vulnerability**

Supply - *Meeting the Coming Shortfall*



Shortfall begins in 2022

Grows to 34,000 AF/Yr. by 2032

16,000 AF from Conservation

Still Needed = 18,000 AF

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Reliability - *Facing a Future Drought*



Moffat Water Treatment Plant

*In the 2002 drought,
Denver Water came
perilously close to
running out of water
in the Moffat
Collection System*



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DENVER WATER

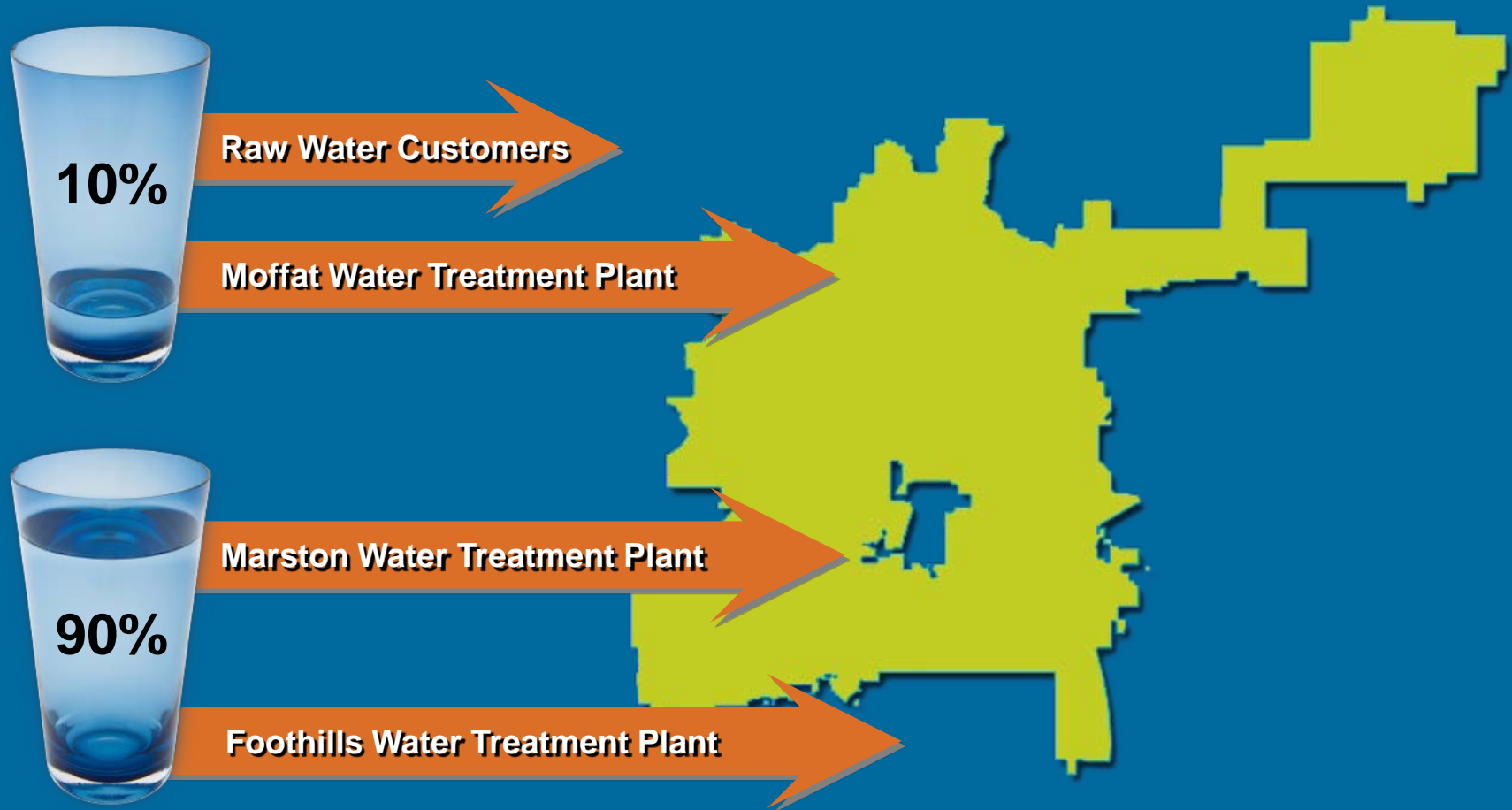
Reliability



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Vulnerability - Collection System Imbalance



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Vulnerability



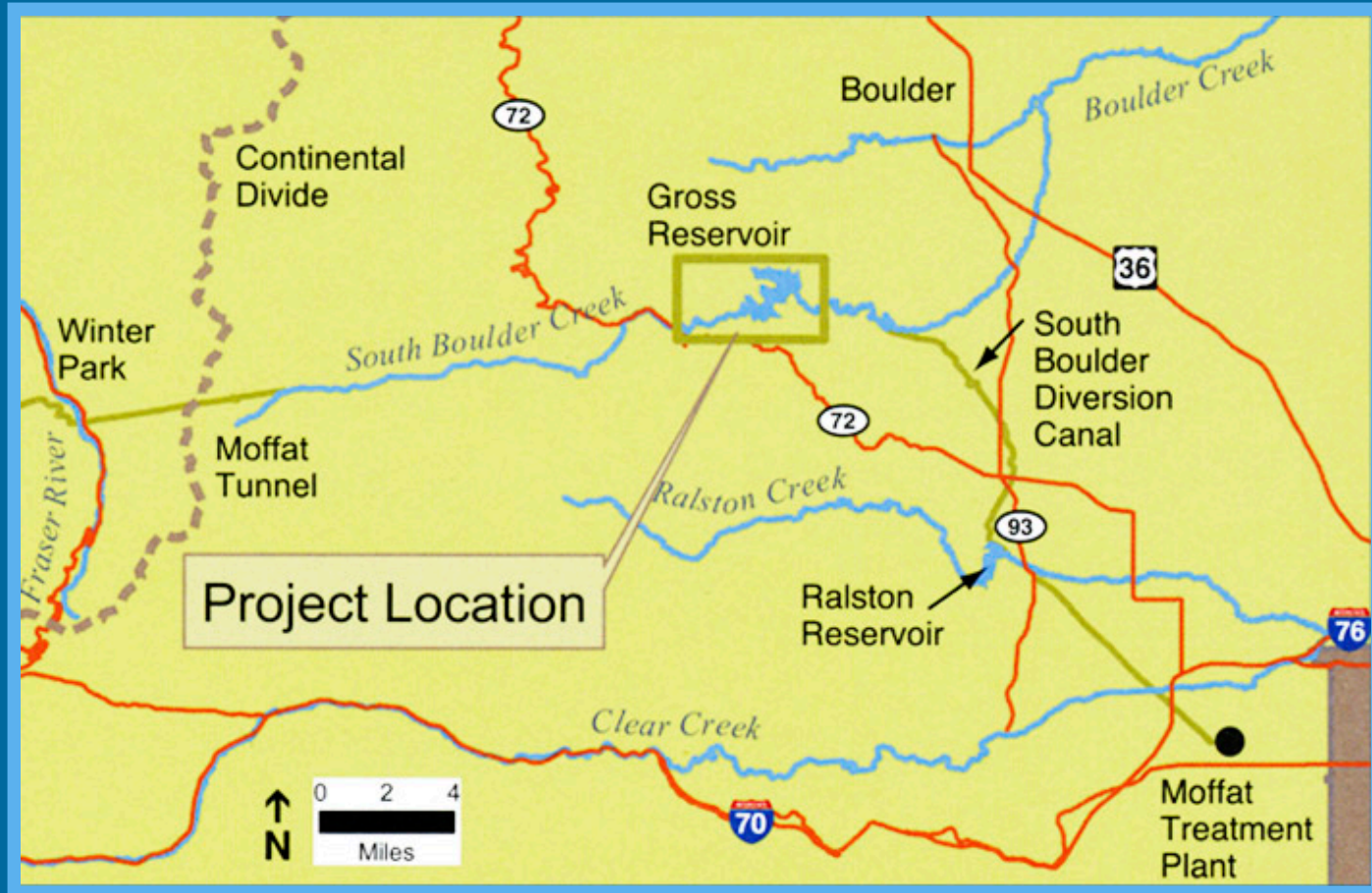
MOFFAT COLLECTION SYSTEM PROJECT

Vulnerability



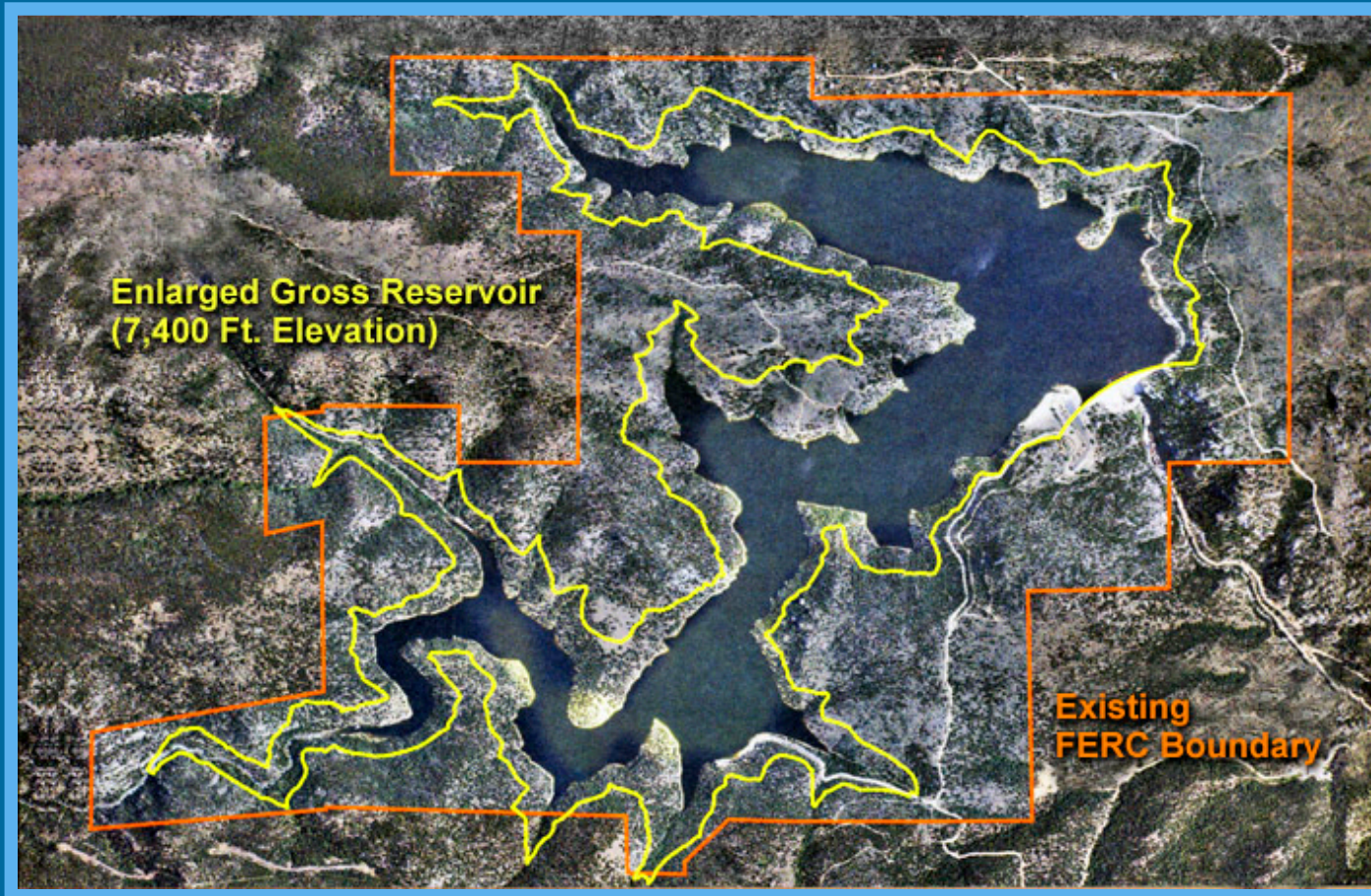
MOFFAT COLLECTION SYSTEM PROJECT

The Location - 26 Miles NW of Denver



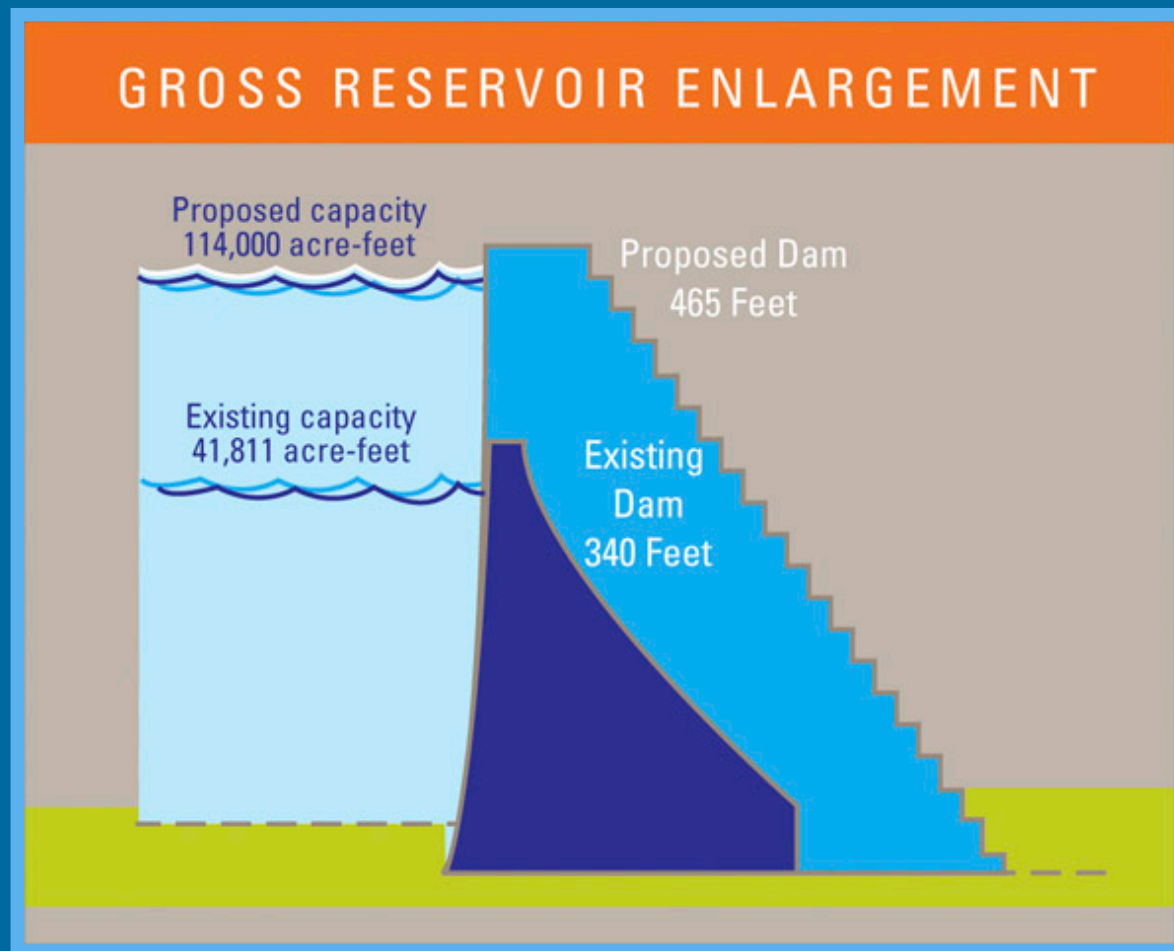
MOFFAT COLLECTION SYSTEM PROJECT

The Proposal - *Enlarge Gross Reservoir*



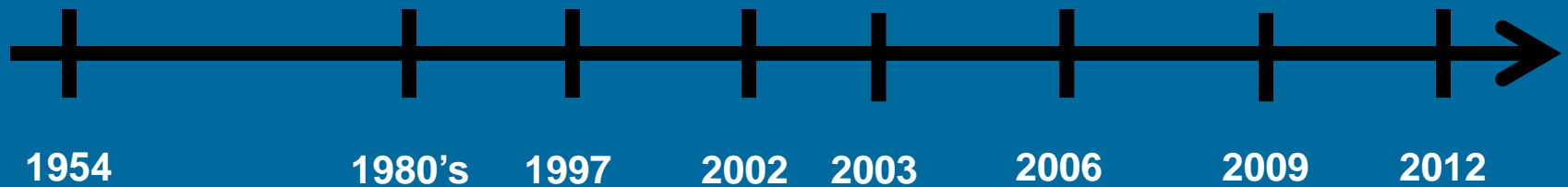
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Create 18,000 Acre-Feet of New Supply



MOFFAT COLLECTION SYSTEM PROJECT

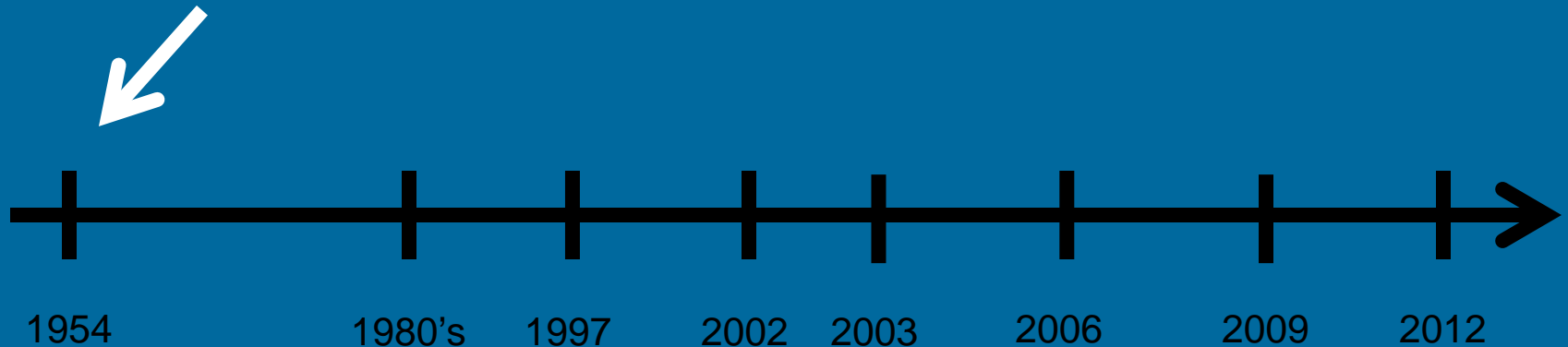
Timeline (1954 – 2012)



MOFFAT COLLECTION SYSTEM PROJECT

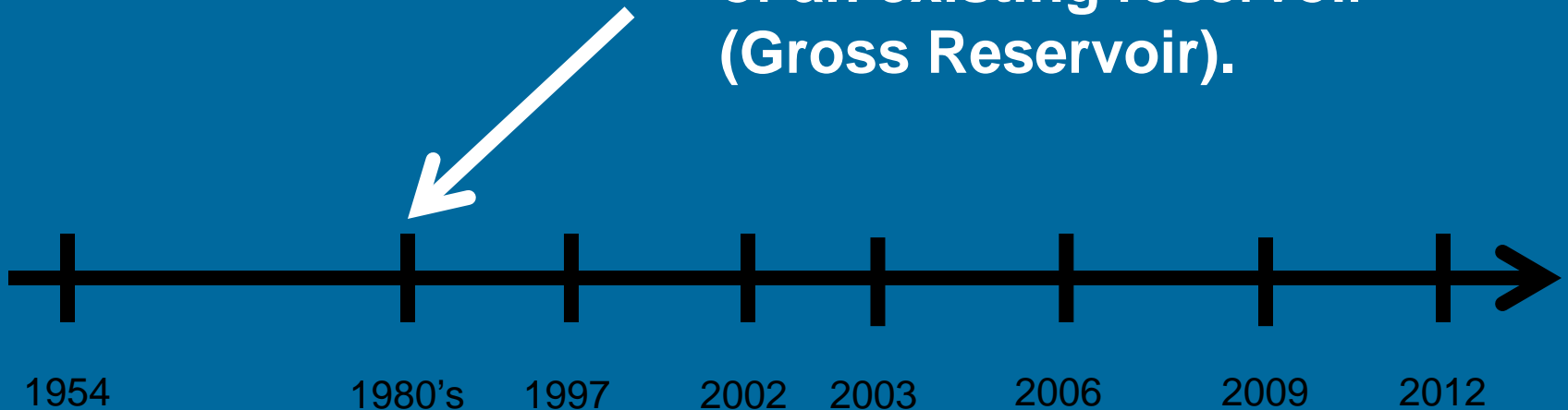
Timeline

- Gross Reservoir Completed.
- Outlet works designed for a dam raise.
- Infrastructure to and from Gross Reservoir designed for an enlargement.



Timeline

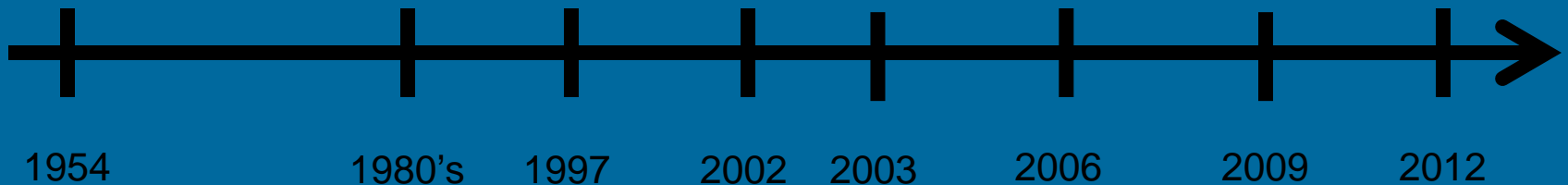
- Two Forks EIS (1981-1990)
- Gross Reservoir an alternative.
- Environmental Community wanted: Conservation, Recycling, and enlargement of an existing reservoir (Gross Reservoir).



Timeline

IRP identified a storage deficit
on the North end.

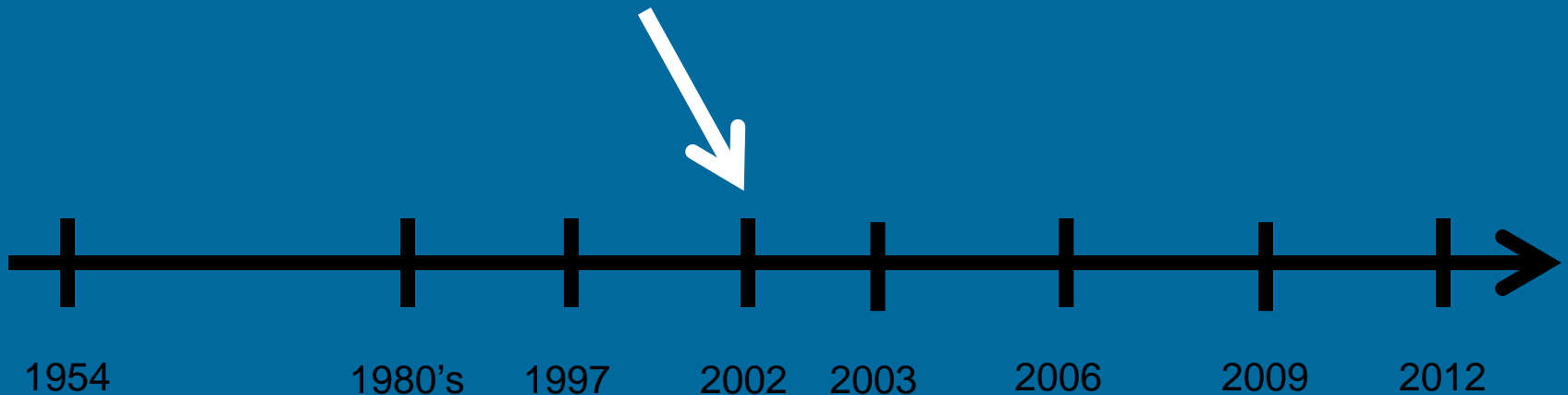
“Source of major concern”



MOFFAT COLLECTION SYSTEM PROJECT

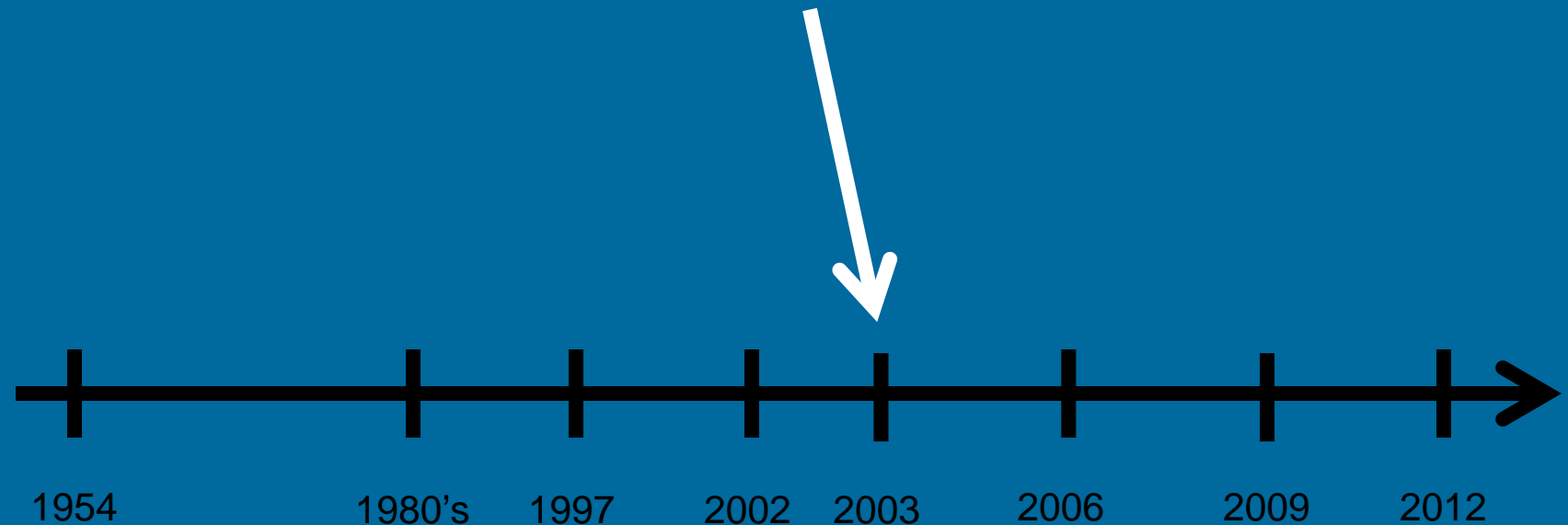
Timeline

- 2002 IRP reaffirms the 1997 IRP
- Drought!
 - Moving water to the North end
 - March 2003 blizzard



Timeline

**Start of the Moffat Collection
System Project EIS**

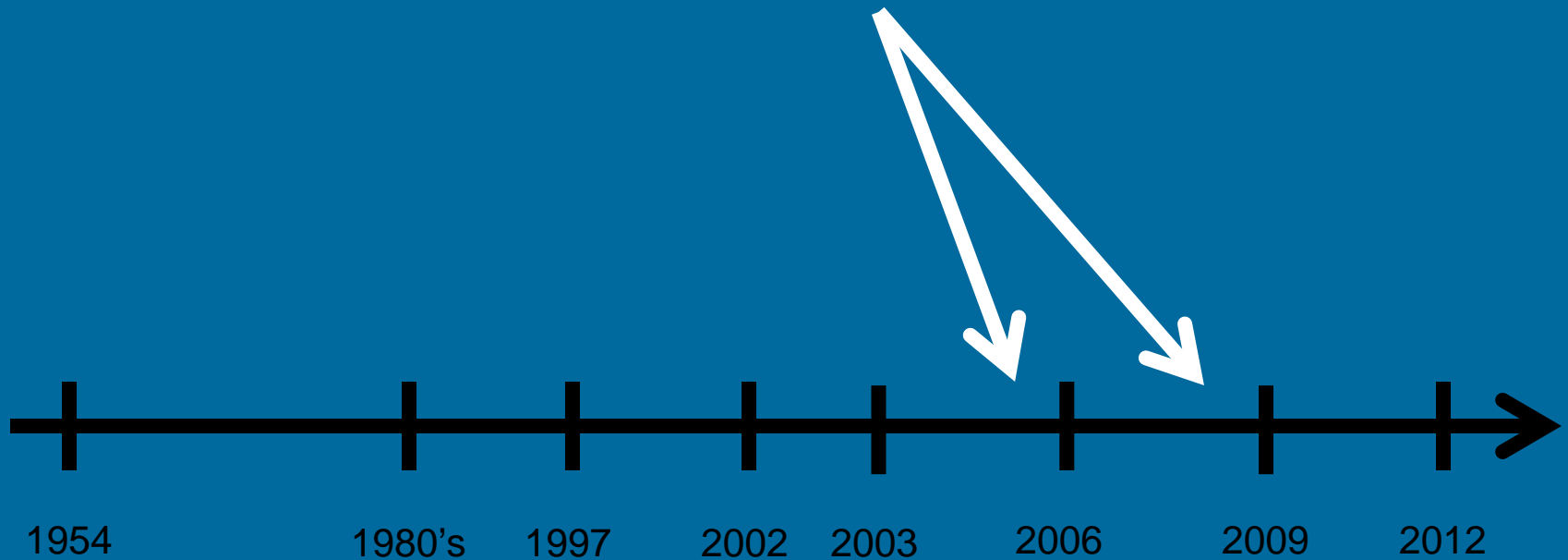


MOFFAT COLLECTION SYSTEM PROJECT



Timeline

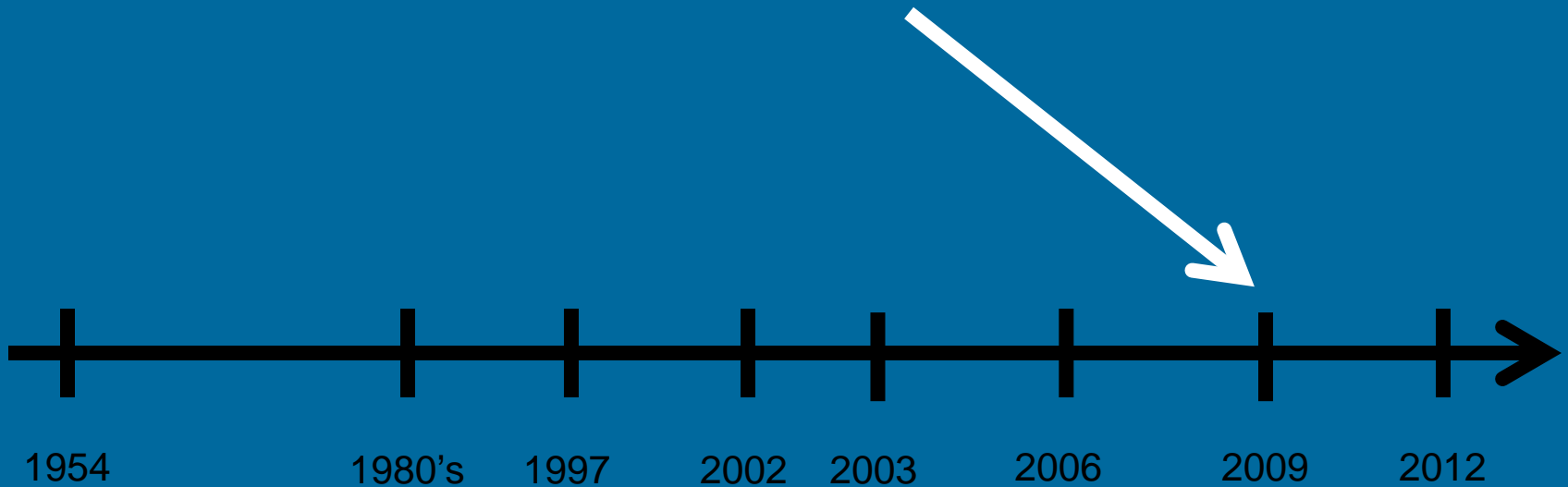
Environmental Studies



MOFFAT COLLECTION SYSTEM PROJECT

Timeline

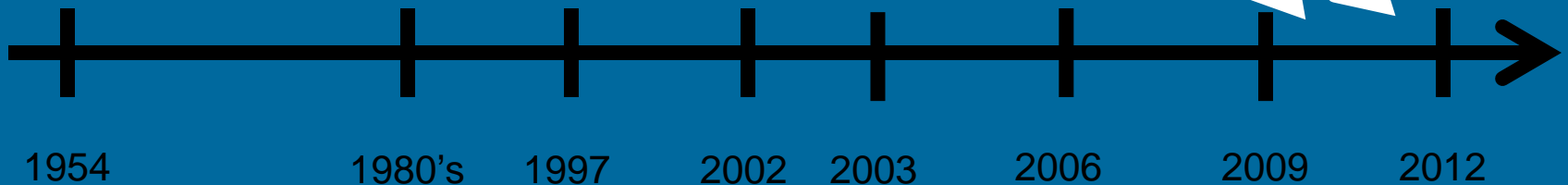
Draft EIS released



MOFFAT COLLECTION SYSTEM PROJECT

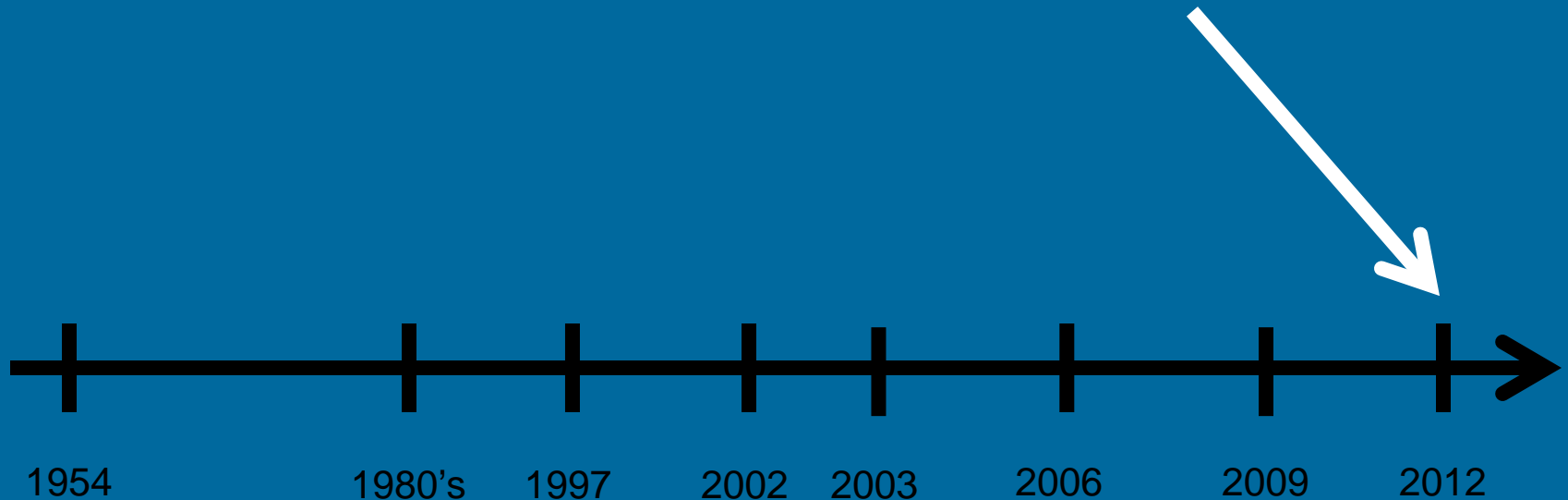
Timeline

- EPA and Corps cooperate?
- Additional Environmental Studies
- CRCA
- WISE



Timeline

Provisional Preliminary
Draft Final EIS

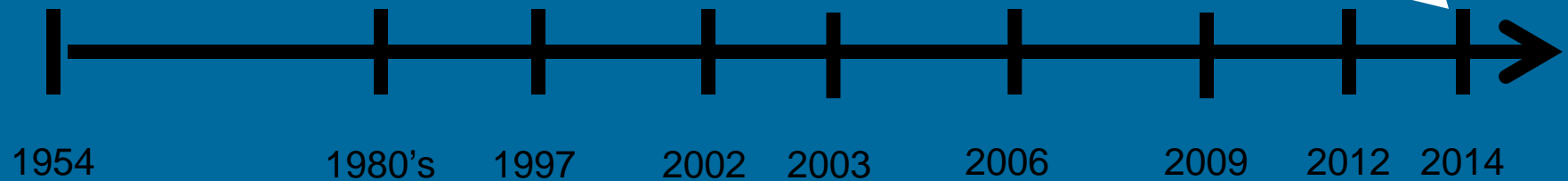


MOFFAT COLLECTION SYSTEM PROJECT



Timeline

Final EIS



MOFFAT COLLECTION SYSTEM PROJECT



Timeline to ROD & Permit

Final EIS Spring 2014

- ROD and 404 Permit(?) – Fall 2015
- Section 7 consultation (ESA) – Fall 2015
- 401 certification – Fall 2015

FERC Amendment

- Summer 2015
- USFS and 4e conditions

Issues

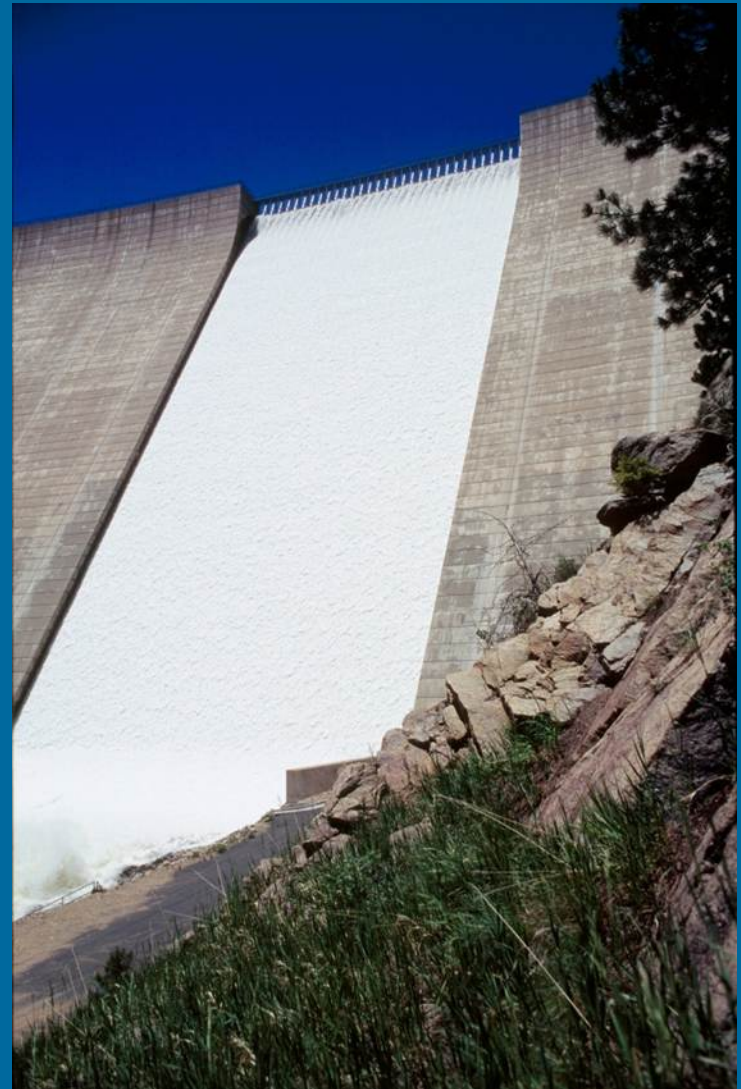
- USFS – 4e conditions
- Coal Creek Canyon residents – Transportation and Construction (Quarry)
- Boulder County – IGA vs. 1041

Mitigation and Enhancement

- Environmental Pool (City Boulder and Lafayette)
- Fish and Wildlife Enhancement Plan (CPW)
- Fish and Wildlife Mitigation Plan (CPW)
- Mitigation and Enhancement Coordination Plan (Grand County and TU)
- EIS mitigation (Corps)
- FERC mitigation (FERC)
- 4e (USFS)
- Off License Agreement (USFS)
- Section 7 ESA (USFWS)
- 401 mitigation (CDPHE)
- Colorado River Cooperative Agreement (West Slope)
- Learning By Doing (GC, RD, TU, NW, MP, CPW, DW)

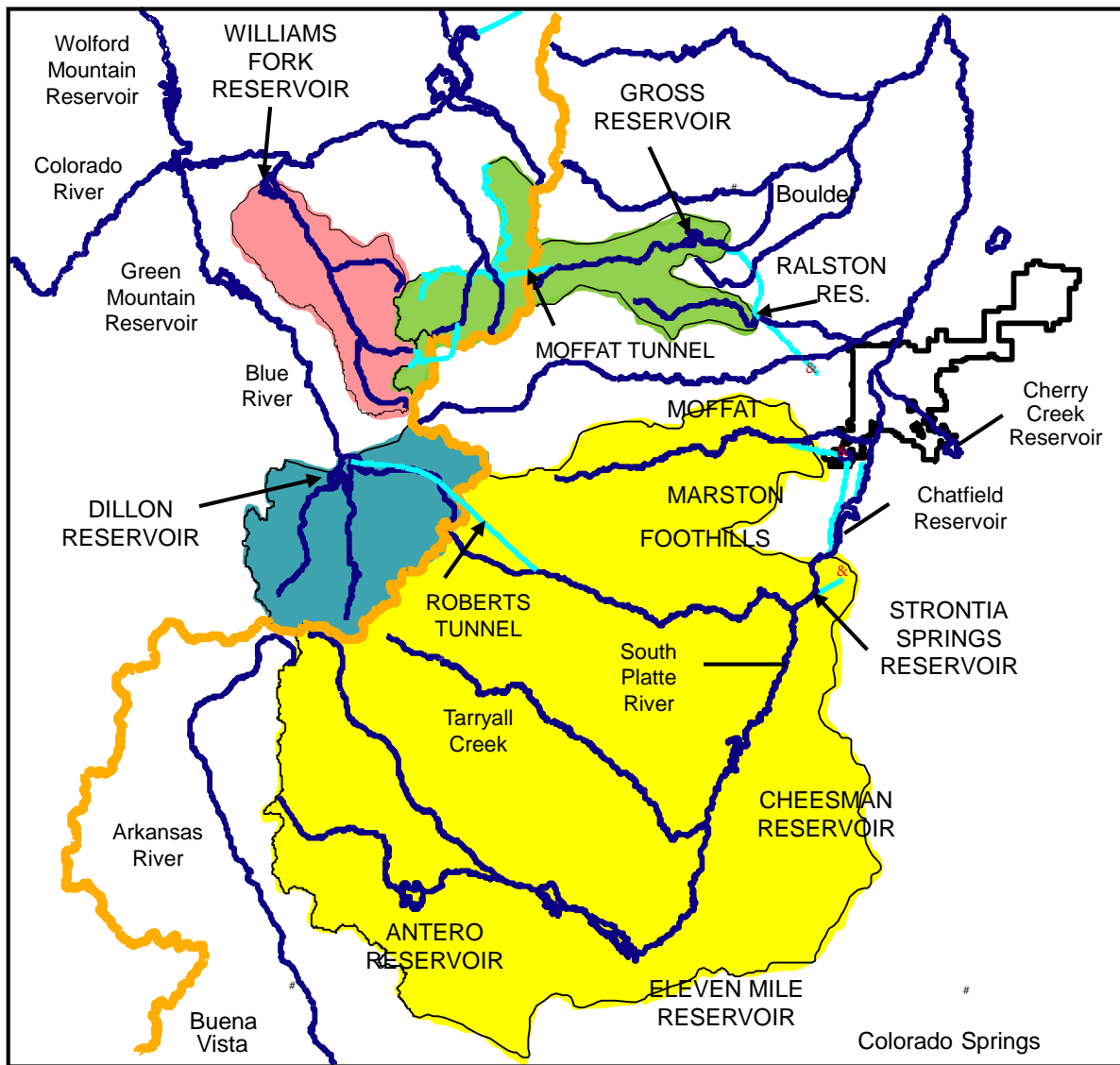
Questions?

Travis Bray
Project Manager
Moffat Collection System Project
303-682-6551
Travis.bray@denverwater.org



MOFFAT COLLECTION SYSTEM PROJECT





COLLECTION SYSTEMS

SOUTH
PLATTE

MOFFAT
TUNNEL

ROBERTS
TUNNEL

WILLIAMS
FORK
WATERSHED

TREATMENT
PLANT

CONTINENTAL
DIVIDE

STREAM OR
RIVER

TUNNEL, CANAL
OR DITCH

200

Upper Fraser River

150

100

50

Fall

Winter

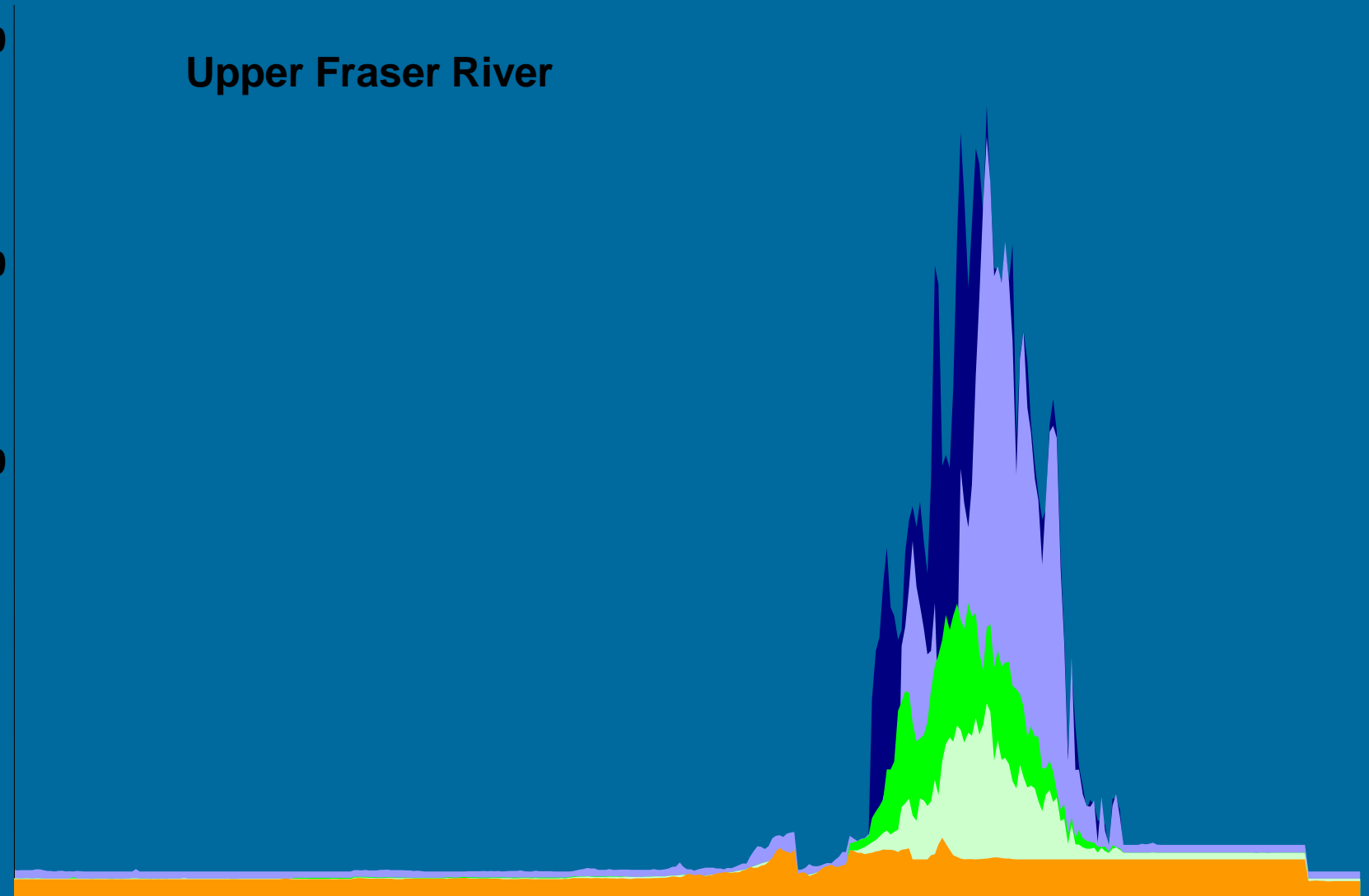
Spring

Summer

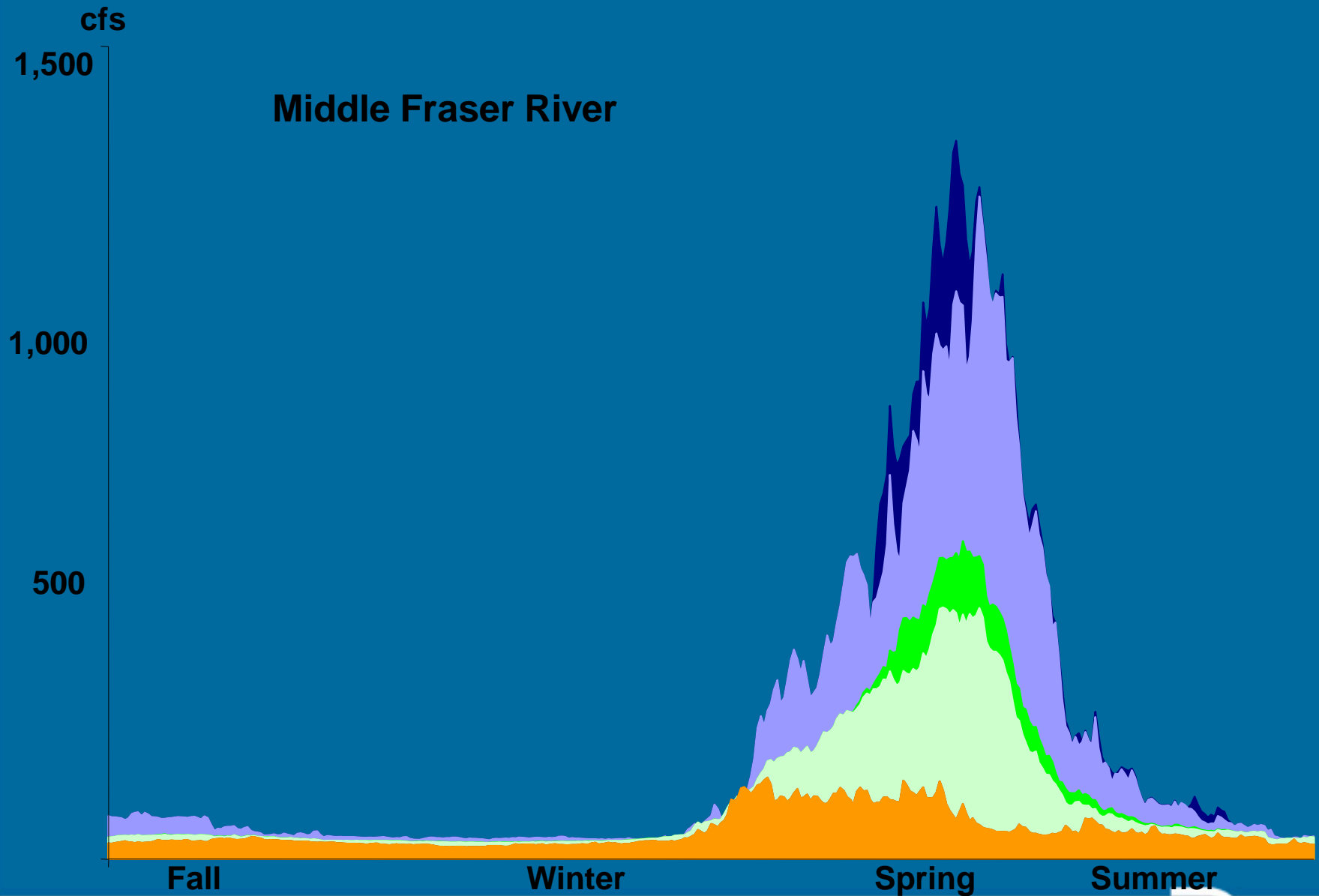
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DENVER WATER



Middle Fraser River



MOFFAT COLLECTION SYSTEM PROJECT

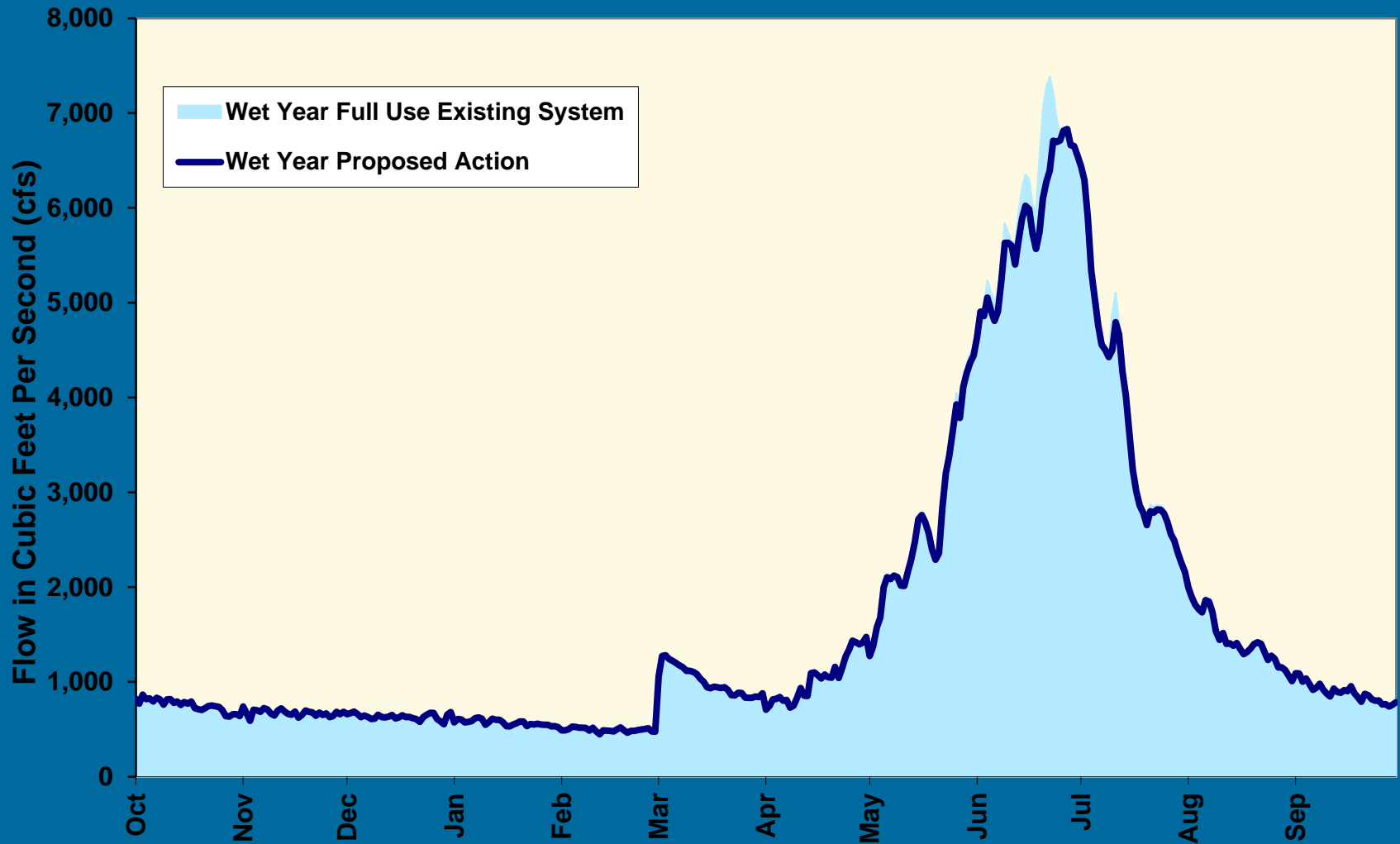


DENVER WATER

Draft: Moffat EIS Process

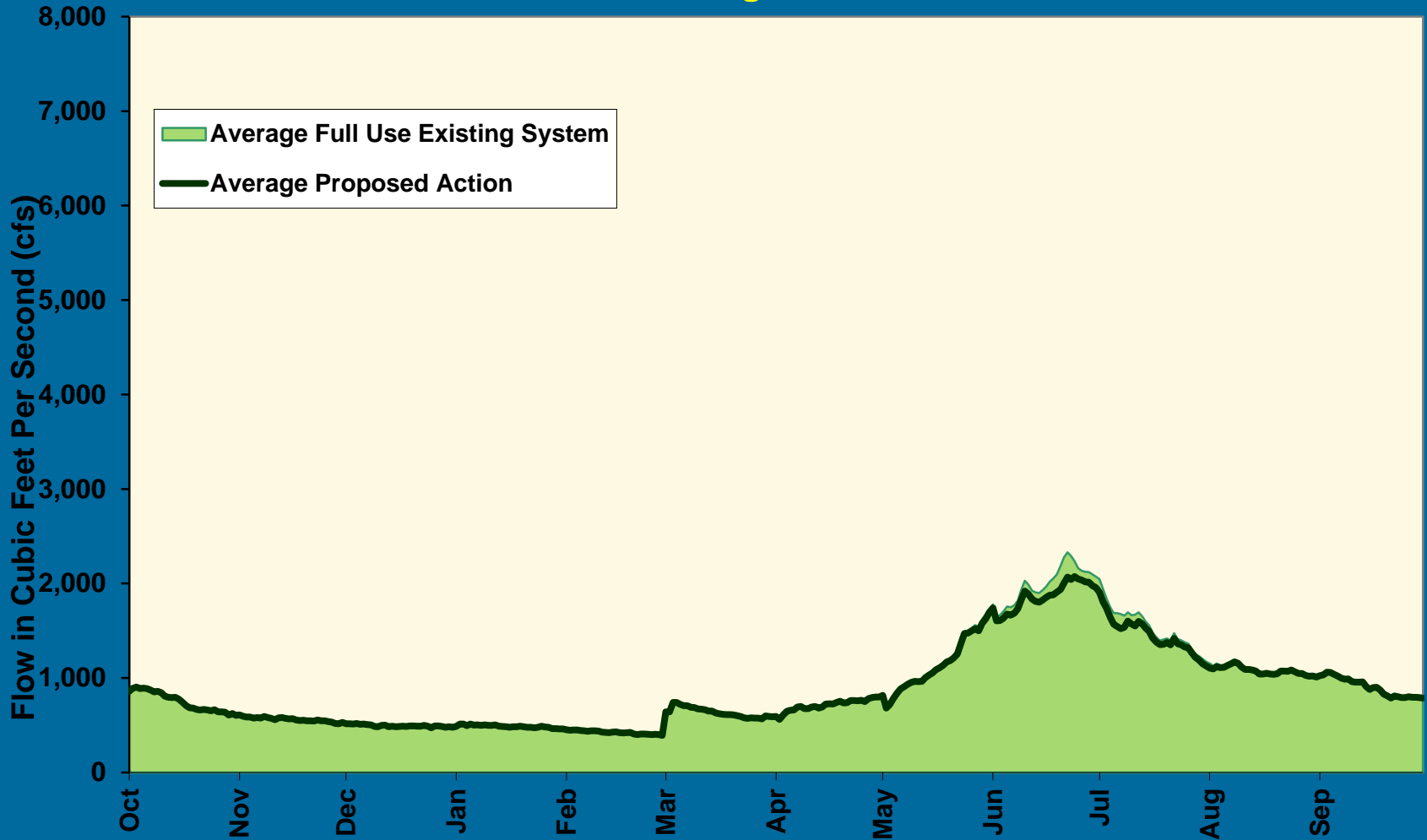
Colorado River Streamflow Near Kremmling

Wet Year



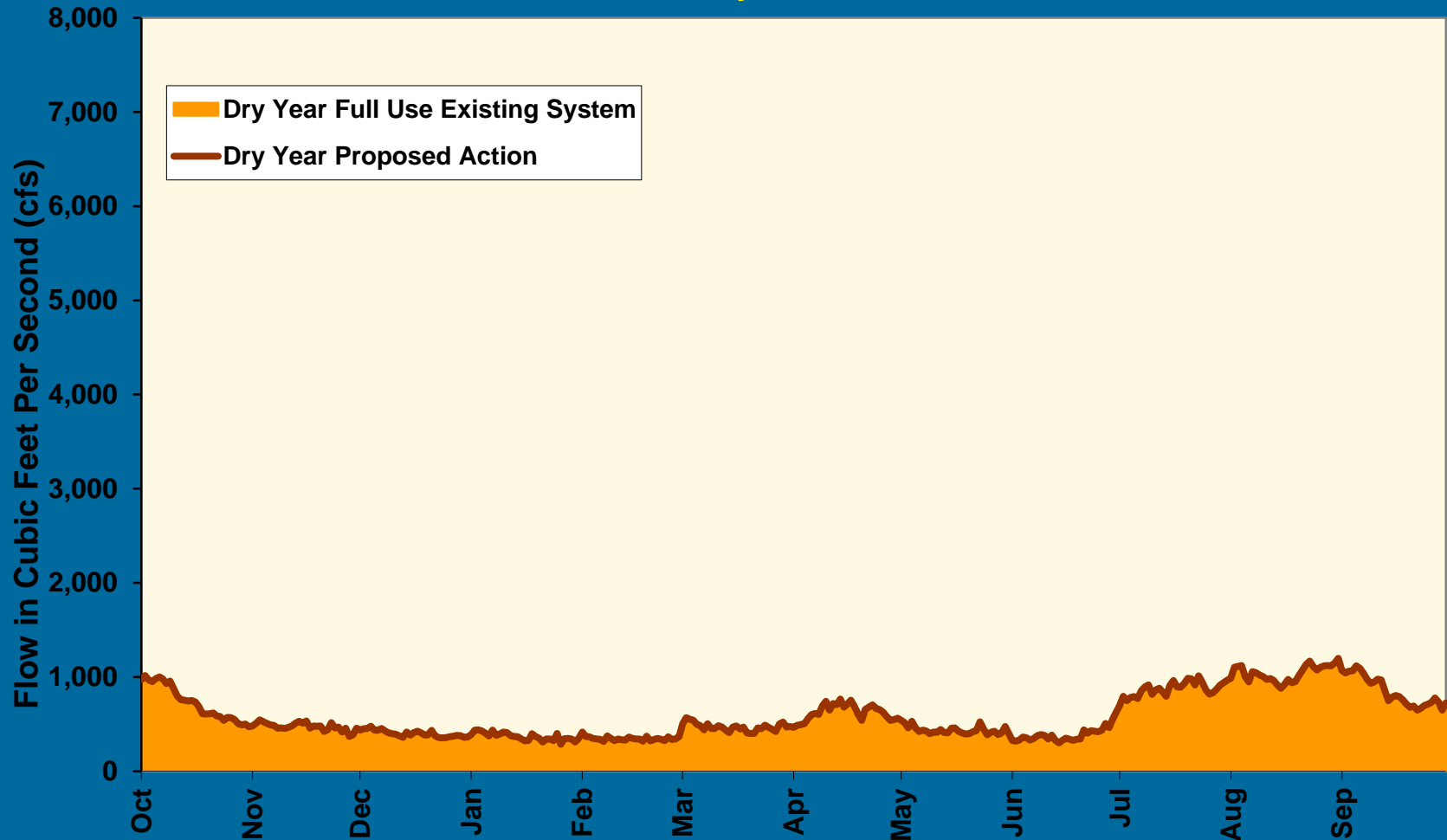
MOFFAT COLLECTION SYSTEM PROJECT

Colorado River Streamflow Near Kremmling Average Year



MOFFAT COLLECTION SYSTEM PROJECT

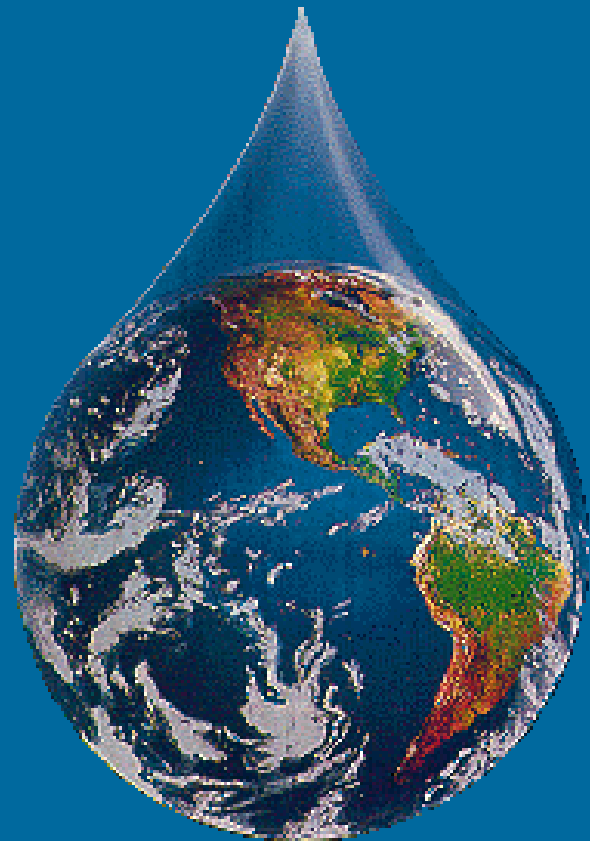
Colorado River Streamflow Near Kremmling Dry Year



MOFFAT COLLECTION SYSTEM PROJECT

Colorado River Cooperative Agreement

(a.k.a. Mediation Agreement)



MOFFAT COLLECTION SYSTEM PROJECT

Mediation

Water

- 1,000 acre-feet additional bypass flows
- Will not reduce bypass flows until Stage 3 of a drought (1,000 to 2,000 acre-feet)
- Joint study on using DW ditch rights to enhance stream flows



Jackie Schumaker

Mediation

Water (cont.)

- 1,000 acre-feet of releases from Williams Fork Reservoir
- Carryover storage space in Williams Fork Reservoir (2,500 acre-feet)
- Joint Study on using lands owned by Denver Water for habitat protection and public access



Mediation

Money

- \$2,000,000 for nutrient loading
- \$2,000,000 for aquatic habitat improvements
- \$2,000,000 for future environmental enhancements
- \$50,000 contribution to Berthoud Pass sediment basin
- \$1,000,000 for the pumping cost of Windy Gap when used for environmental flows



Timeline

1997 IRP

- Identified a storage deficit on the North end.
- “Source of major concern”

2002 IRP

- Reaffirms the 1997 IRP

2002 Drought

- North end Load shifting
- March 2003 blizzard
- No water on the North end

Timeline – EIS process

2003 - started the EIS process (Scoping)

2006 - Field Studies

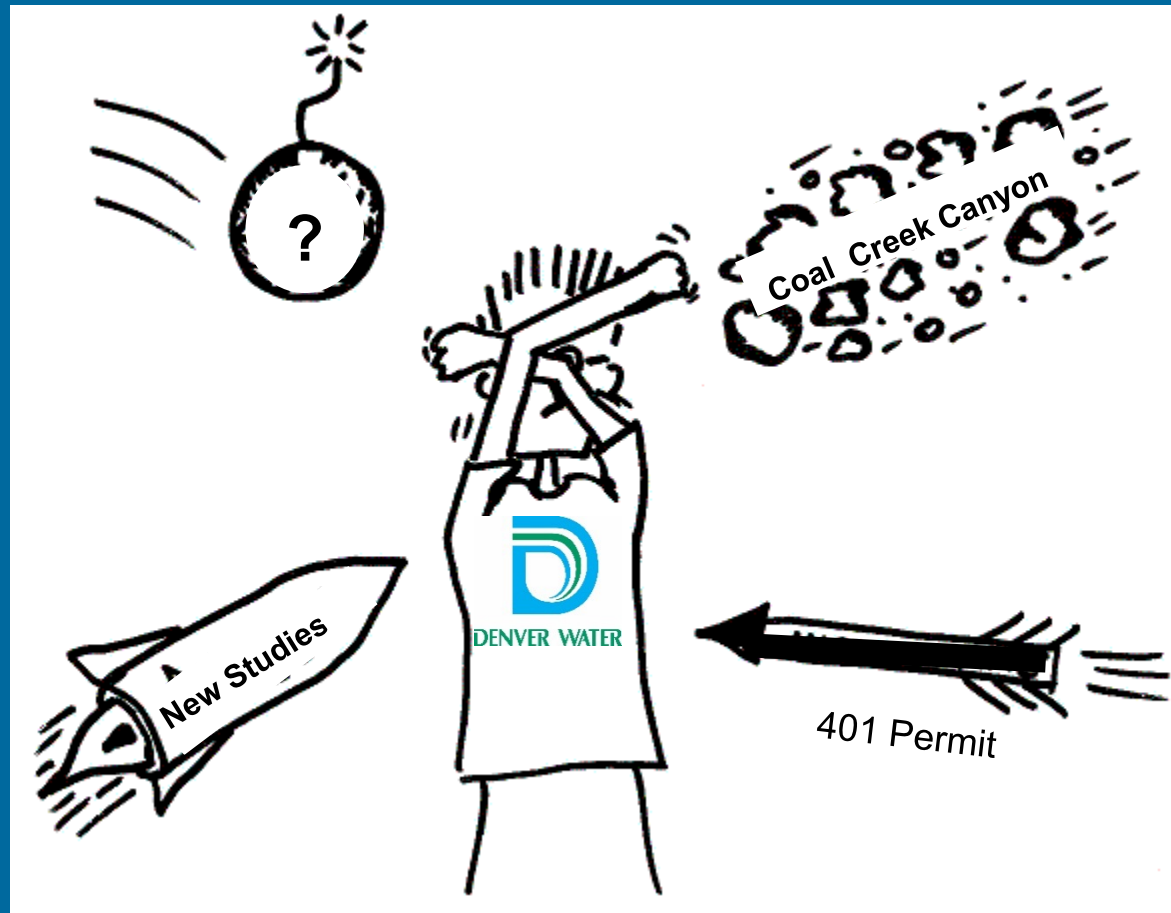
2009 - Draft EIS

2010 and 2011

- EPA and Corps cooperation
- Additional studies
- CRCA
- WISE
- 10825

2012 - Final EIS ?

Outstanding and “New” Issues



MOFFAT COLLECTION SYSTEM PROJECT